

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **HITTINGER et al.** Examiner: SEAMAN, D Margaret M

Application No.: **10/773,806** Art Unit: 1625

Filed: **February 6, 2004**

Title: **CHEMICAL DERIVATIVES AS ANTITELOMERASE AGENTS WHICH
BIND SPECIFICALLY TO THE G-QUADRUPLEX DNA STRUCTURES
AND THEIR APPLICATION AS A SPECIFIC ANTICANCER AGENT**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Response to Restriction Requirement Under 35 U.S.C. § 121

This is in response to the Office Action issued August 28, 2007, in the above-identified application, setting a one-month period for response expiring September 28, 2007.

This response is timely filed.

It is respectfully requested that the following provisional election and remarks be entered in this case.

Remarks

The Examiner has required restriction under 35 U.S.C. §121 as follows:

- Group I: Claims 1-31 (in part), drawn to compounds and compositions of formula (Ia) wherein A is a 5- or 6-membered heterocyclic radical and Ar1 and Ar2 are the same, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.
- Group II: Claims 1-31 (in part), drawn to compounds and compositions of formula (Ia) wherein A is a phenyl ring and Ar1 and Ar2 are the same, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.

- Group III: Claims 1-31 (in part), drawn to compounds and compositions of formula (Ia) wherein A is a diazine or triazine and Ar1 and Ar2 are the same, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.
- Group IV: Claims 1-31 (in part), drawn to compounds and compositions of formula (Ia) wherein A is a 5- or 6-membered heterocyclic radical and Ar1 and Ar2 are not the same, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.
- Group V: Claims 1-31 (in part), drawn to compounds and compositions of formula (Ia) wherein A is a phenyl ring and Ar1 and Ar2 are not the same, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.
- Group VI: Claims 1-31 (in part), drawn to compounds and compositions of formula (Ia) wherein A is a diazine or triazine and Ar1 and Ar2 are not the same, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.
- Group VII: Claims 1-31 (in part), drawn to compounds and compositions of formula (IB) wherein A is a 5- or 6-membered heterocyclic radical other than encompassed by the above groups I-VI, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.
- Group VIII: Claims 1-31 (in part), drawn to compounds and compositions of formula (IB) wherein A is a phenyl ring other than encompassed by the above groups I-VI, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.
- Group IX: Claims 1-31 (in part), drawn to compounds and compositions of formula (IB) wherein A is a diazine or triazine other than encompassed by the above groups I-VI, classified in class 546, subclass 153+, depending upon an election of a single disclosed species.

- Group X: Claims 32-42 (in part), drawn to methods of treatment using formula (Ia) wherein A is a 5- or 6-membered heterocyclic radical and Ar1 and Ar2 are the same, classified in class 514, subclass various+, depending upon an election of a single disclosed species.
- Group XI: Claims 32-42 (in part), drawn to methods of treatment using formula (Ia) wherein A is a phenyl ring and Ar1 and Ar2 are the same, classified in class 514, subclass various+, depending upon an election of a single disclosed species.
- Group XII: Claims 32-42 (in part), drawn to methods of treatment using formula (Ia) wherein A is a diazine or triazine and Ar1 and Ar2 are the same, classified in class 514, subclass various+, depending upon an election of a single disclosed species.
- Group XIII: Claims 32-42 (in part), drawn to methods of treatment using formula (Ia) wherein A is a 5- or 6-membered heterocyclic radical and Ar1 and Ar2 are not the same, classified in class 514, subclass various, depending upon an election of a single disclosed species.
- Group XIV: Claims 32-42 (in part), drawn to methods of treatment using formula (Ia) wherein A is a phenyl ring and Ar1 and Ar2 are not the same, classified in class 514, subclass various+, depending upon an election of a single disclosed species.
- Group XV: Claims 32-42 (in part), drawn to methods of treatment using formula (Ia) wherein A is a diazine or triazine and Ar1 and Ar2 are not the same, classified in class 514, subclass various+, depending upon an election of a single disclosed species.
- Group XVI: Claims 32-42 (in part), drawn to methods of treatment using compounds of formula (IB) wherein A is a 5- or 6-membered heterocyclic radical other than encompassed by the above groups I-VI, classified in class 514, subclass various+, depending upon an election of a single disclosed species.

Group XVII: Claims 32-42 (in part), drawn to methods of treatment using formula (IB) wherein A is a phenyl ring other than encompassed by the above groups I-VI, classified in class 514, subclass various+, depending upon an election of a single disclosed species.

Group XVIII: Claims 32-42 (in part), drawn to methods of treatment using compounds of formula (IB) wherein A is a diazine or triazine other than encompassed by the above groups I-VI, classified in class 514, subclass various+, depending upon an election of a single disclosed species.

(Restriction Requirement, pages 2 to 5).

The Examiner has also required election of a species or invention to be examined and identification of the claims encompassing the elected invention.

The Examiner's basis for requiring restriction is that Invention Groups I to IX "have materially different function and do not overlap in scope...the different groups are not obvious variants" and that Invention groups X-XVIII "have different function and do not overlap in scope" (Restriction Requirement, page 6). The Examiner concludes that a serious burden is placed on the Examiner because the inventions have acquired a separate status in the art because of due to their recognized divergent subject matter (Restriction Requirement, page 7).

Notwithstanding the Examiner's allegations, Applicants respectfully traverse this restriction requirement.

The Examiner relies on MPEP § 806.05(j) which permits restriction when:

- (A) the inventions *as claimed* do not overlap in scope, i.e., are mutually exclusive;
- (B) the inventions *as claimed* are not obvious variants; and
- (C) the inventions *as claimed* are either not capable of use together or can have a materially different design, mode of operation, function, or effect.

The Examiner maintains that the inventions of Groups I-IX have materially different functions, but has failed to provide any example or explanation why the compounds of Groups I-

IX are considered to have distinct functions. In fact, the inventions of Groups I-IX all relate to compounds which bind the G-quadruplex structure of DNA or RNA, and, therefore, the compounds have the same function, not materially different functions as alleged by the Examiner. Accordingly, the present restriction under MPEP § 806.05(j) is improper.

Furthermore, the inventions of Groups I-IX and Groups X-XVIII are related as compounds of Formula (IB) and methods of using the compounds of Formula (IB). Applicants submit that a search for the compounds of Groups I-IX would facilitate a search for the methods of using these compounds (Groups X to XVIII), thus imposing no undue burden on the Examiner to search together the compounds of Groups I-IX with their corresponding methods of use.

In view of the foregoing, this eighteen-way restriction is improper since a serious burden on the Examiner is not imposed. However, the eighteen-way restriction imposes both undue expense and resource allocation requirements on Applicants, since Applicants would have to prosecute and maintain a plurality of patents. For the foregoing reasons, Applicants respectfully request reconsideration of the restriction requirement.

Provisional Election

Should the restriction requirement be made final and in order to be fully responsive, Applicants provisionally elect with traverse the invention Group I, Claims 1 to 31, in part, drawn to compounds wherein A (or the distribution agent) is a 5- or 6- membered heterocyclic radical and Ar₁ and Ar₂ (or the “nitrogen-containing aromatic ring possessing a nitrogen atom in quaternary form” and the “aromatic or nonaromatic ring”) are the same.

Applicants also elect, with traverse, the species of Example 9: 2-[(1-methylquinolinio-6-yl)amido]-6-[(1-methylquinolinio-3-yl)amido]-2,6-pyridinedicarboxylic acid iodide. Support for this species can be found, for example, on pages 39 to 40 of the Specification. The claims that read upon the elected species are Claims 1 to 5, 7 to 12, 14, 16 to 24, and 26 to 31.

Applicants reserve their right of rejoinder under MPEP § 821.04 and their right to file one or more divisional applications with respect to any of the non-elected subject matter.

The Commissioner is hereby authorized to charge any additional fees which may be required by this paper, or credit any overpayment to Deposit Account No. 18-1982.

Respectfully submitted,

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Date

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